

DISCOVERY OF FERNALD'S *BACOPA SIMULANS*
(SCROPHULARIACEAE) ON THE
POTOMAC RIVER IN VIRGINIA

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The history of *Bacopa simulans* Fernald dates back to 1840, when Rafinesque described *Macuillamia obovata* Raf. from the Potomac River in Virginia and from Louisiana. Rafinesque (1840) described this species as having prostrate, non-flexuous, hirsute stems; sessile, obovate or elliptic leaves; flowering pedicels shorter than the subtending bract; and globose capsules. In 1921, J. E. Grimes collected three specimens, apparently in very poor condition, along the Chickahominy River at Lanexa, New Kent County, Virginia (Grimes 4136, γ). These were labeled as *Echinodorus tenellus* (Mart.) Buchenau. Pennell (1935) identified Grimes' collection as *Macuillamia obovata* Rafinesque. Fernald later formally transferred *M. obovata* to *Bacopa obovata* (Raf.) Fern., never having seen Grimes' collection (Fernald, 1937). Fernald, however, was interested in re-locating Grimes' plant, so he searched the tidal shores along the Chickahominy River in Virginia. In 1941, Fernald finally found what he called the "mysterious *Bacopa*" of Grimes. His material did not agree with Rafinesque's description of *Macuillamia obovata*. Searches were made of herbaria where Rafinesque deposited specimens, both by Pennell in 1935 and by Fernald in 1942. Not a single specimen of *M. obovata* was to be found. According to Fernald, Rafinesque's plant was probably based on a mixture of plants from Louisiana and the shores of the Potomac. He felt that Pennell had recognized this probability, and in his monograph of the Scrophulariaceae in 1935 had tried to sort out characters in the description that would apply either to the plants of Louisiana or to those of the Potomac. Fernald named the Virginia plants *Bacopa simulans*, dismissing Rafinesque's report as presumably *Gratiola virginiana* var. *aestuariorum* Pennell (Fernald, 1942).

Fernald (1942) described *Bacopa simulans* from Graves Landing on the Chickahominy River in Charles City County, Virginia. This area of tidal flats along the Chickahominy has remained the only known historical site for this species. No new specimens of this plant have been collected since Fernald's 1941 collections. All attempts to re-locate the plant have been unsuccessful. *Bacopa*

simulans is listed as "historical" on the rare plant element list compiled by the Virginia Natural Heritage Program (VaNHP) in 1986. It is listed as "possibly extinct" (category 2*) by the U.S. Fish and Wildlife Service (1985) and as "extinct" by Ayensu and DeFilipps (1978).

During the summer and fall of 1986, while doing botanical field surveys for the Nature Conservancy, I became familiar with *Bacopa stragula* Fernald in southeastern Virginia. By the end of the season I had developed a good eye for the morphology of this species as well as a good "search image" of the habitat and the species with which it is associated. In early August, 1987, when botanizing the tidal flats along the Potomac River in Stafford County, I came upon four plants that looked very similar to *Bacopa stragula*, but which were much larger and more robust than the plants I had become acquainted with in southeastern Virginia. In the very restricted habitat that the plants occupied, they were scattered over a 2000 ft.² area. A small specimen was collected and taken to the herbarium of Dr. Ted Bradley at George Mason University in Fairfax, Virginia. Upon examining the specimen, Dr. Bradley and I concluded that it was *Bacopa simulans* as described by Fernald in 1942. The plant was also compared with the isotype specimen at US. It was found to match clearly the morphological characteristics of the isotype.

Fernald (1942) named this species *Bacopa simulans* for its apparent similarity to *B. rotundifolia* (Michaux) Wettstein, a plant of the Mississippi drainage. The latter species was described by Fernald as differing from *B. simulans* in having a "copiously hirsute stem, thin and clearly nerved leaves that are rounded, the larger ones 2–3.5 cm long and 1.5–2.7 cm broad, slender and pubescent pedicels 0.8–2 cm long, and a rather showy campanulate corolla 6–8 mm long, with widespreading limb about as broad." *Bacopa simulans*, on the other hand, was described as having "glabrous stems and pedicels, more opaque leaves only 1–2 cm long and 0.6–1.5 cm broad, thick pedicels at most 11 mm long, and a corolla 4 mm long and 2 mm broad." The specimen I collected from the Potomac River has glabrous stems and pedicels, leaves 0.6–2.0 cm long and 0.6–1.8 cm wide, thick pedicels 0.5–0.8 cm long, and corollas 4 mm long and 2 mm wide, characteristic of *B. simulans*. Specimens are deposited at FARM, GMUF, and in the herbarium of the author.

Bacopa simulans, which was once thought to be extinct, is now extant on the Potomac River in Virginia. As of 1988, eleven plants have been found at the site. Because *B. simulans* has been discovered on the Potomac River, protection of its habitat is now of the utmost importance for this rare plant.

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